Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Pearson Creek

Waterbody Segment at a Glance:

County: Greene
Nearby Cities: Springfield
Length of impairment: 1.5 miles
Pollutant: Unknown Toxicity
Source: Urban Nonpoint Source

Propose to change the source from Unknown to Urban Nonpoint Source

TMDL Priority Ranking: Medium


State map showing location of watershed

Description of the Problem

Beneficial uses of Pearson Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption
- Whole Body Contact Recreation (Swimming)

Use that is impaired

- Protection of Warm Water Aquatic Life
- Whole Body Contact Recreation (Swimming)

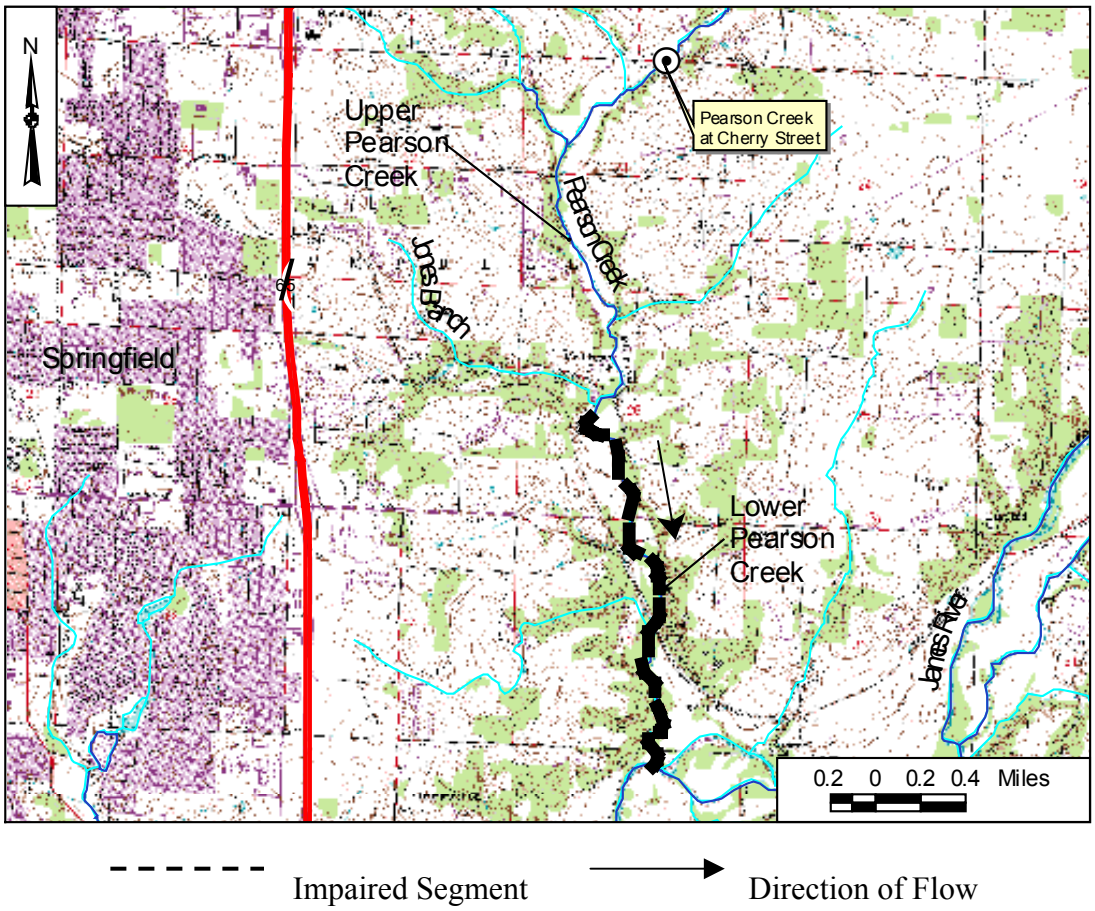
Standards that Apply

- In Missouri's Water Quality Standards, 10 CSR 20-7.030 (3)(D) and (G), the general criteria state that:
  - Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
  - Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.

Pearson Creek (also spelled Pierson) drains a 23.4 square mile watershed. The northern and eastern portions of the watershed are primarily agricultural lands. Agricultural activities include dairy farming and pasturing beef cattle. The western and southern portions of the watershed consist primarily of urban development, located on the eastern edge of the Springfield, Missouri urban area. Pearson Creek joins the James River just above the municipal drinking water intake. Output from springs provides a significant amount of flow to the creek. Pearson Creek is on the 1998 303(d) list for unknown toxicity from unknown sources, so more data is needed to clarify the problem(s). The

primary evidence of impairment in Pearson Creek comes from long term monitoring by biologists with the city's drinking water provider, City Utilities of Springfield. Their data shows a significant reduction in the number of aquatic invertebrate species (like crayfish and water insects) between the 1960s and the 1990s. The U.S. Geological Survey (USGS) completed a water quality study of the Springfield urban area in 2000. This study focused on heavy metal and organic toxicants in normal and stormwater flows in Wilson and Pearson creeks. The USGS is still reviewing the data. Map and data tables may be found below.

Pearson Creek in Greene County, Missouri



Average Aquatic Biological Diversity in Pearson Creek, 1984-1992

	Number of EPT taxa[1]	Biotic Index[2]	Number of taxa per 100 organisms
Upper Pearson Creek	29	26	17
Lower Pearson Creek	14	28	14

[1] Orders Ephemeroptera (Mayflies), Plecoptera (Stoneflies), and Trichoptera (Caddisflies)
[2] Based on numbers of taxa and number of individuals within each taxon per sample
Source: City Utilities of Springfield

Historical Changes in Aquatic Macroinvertebratees in Lower Pearson Creek

	1964-1965	1992
Biotic Index[1]	28.7	27.7
Number of taxa per 100 organisms	17.5	14.5
Total number of taxa	24.5	17.8
Number of EPT taxa[2]	12.8	5.8

[1] Based on numbers of taxa and number of individuals within each taxon per sample
[2] Orders Ephemeroptera (Mayflies), Plecoptera (Stoneflies), and Trichoptera (Caddisflies)
Source: City Utilities of Springfield

Total Number of Taxa in Pearson Creek at Cherry Street

Year	Total Taxa
1992	24
1999	20
2001	17

Source: City Utilities of Springfield

For more information call or write:
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